

The effectiveness of greenhouses and the significance of enhancing heat transfer within them were confirmed in this project. Increased agricultural output as well as enhanced social, economic, and environmental sustainability in the local communities may result from these advancements. By presenting the chosen application and using a mathematical model through calculations of heat transfer rate, taking into account parameters like volume, properties, initial and boundary conditions, and contact resistance between adjacent surfaces, the physical structure and mathematical model of the greenhouse were discussed. Along with their corresponding sources, the thermal characteristics of the materials—such as density, specific heat capacity, and thermal conductivity—were discussed. A comprehensive list of all the materials used and their sources was provided.